

the cultivators of natural history science, that a wide-spread dissatisfaction prevails among them *relative to the actual condition of and means of access to the vast and valuable materials in the Natural History Departments of the British Museum*, we have necessarily directed our attention to this subject of complaint." I was induced to look for the memorial, and you may well suppose my astonishment to find that it contains no such complaints, but was entirely devoted to another subject. The words of the memorial are as follows: "A strong feeling pervades the naturalists of our country that the promotion of the science of natural history is very inadequately provided for by the present constitution of the Trustees of the British Museum." The complaint here made was rectified by the election of Dr. Buckland as a Trustee.

If the other statements of the Commission are no more accurate than the above, their Report cannot be of much value, and the expenses incurred by their three years' occupation is a useless expenditure.—F.R.S.

ECHINOCACTUS EYRIESII.

Highgate, April 17, 1850.

MY DEAR SIR,—You will remember my calling your attention some time ago to the characters which are assumed by *Echinocactus Eyriesii*. The artificial divisions which have been made of the Cactaceæ have always seemed to me unsatisfactory. The point is one of some interest to those who conceive, as I confess that I do, that clearness and definiteness of principle in the characterization of genus and species is a matter of much importance to the progress of natural history. I think I can satisfy any reasonable person that *Echinocactus Eyriesii* cannot be separated from *Cereus*, if Dame Nature is to be taken as a guide instead of mere arbitrary fancy. I take *E. Eyriesii* alone now, because it seems to be regarded as typical of the genus, and because I have had the longest opportunities of observing it.

I suppose nobody will contend that the mere matter of the *time* which it takes for a plant (or anything else) to reach maturity and its characteristic form, is to fix the determination of genus. This may, when strongly marked, be well enough for a specific distinction, but it cannot, surely, yield a generic one. Else, on every principle of logic, each different kind of *Cereus* must make a different genus. If two plants, belonging to the same family, and in the characters of whose flowers no essential distinction can be pointed out, assume, when arrived at mature age, a tendency to a similar habit, it seems to me that we get only into confusion, and make all classification mere moonshine, if we do not put them into the same *genus*.

Now to my friend *Echinocactus Eyriesii*. And I call it my friend, because, though not by any means a frequent denizen of the greenhouse, I am sure it ought to be so, if purity, elegance, and fragrance in a flower can give a claim. The gardeners pretend it is a shy bloomer. That must be owing to bad management. I do not know any cactus which is a freer bloomer. I have never passed a year without a constant succession, on the same plant, of its exquisite and delicately fragrant flowers. I have several plants of it. One of

these I have had for more than ten years. It must be thirteen years old, from my observation of the rate of growing. At three years old it was, according to the received descriptions, "*subglobose*," &c. But with its growth, it has altogether lost this character. And, while the flowers are identical in general characters with those of the *Cereus*,—very much more identical in detail with many species of the *Cereus* than those of different received species of *Cereus* are with one another,—it is quite impossible to separate the plant itself, in its general habit, from any characters taken from a general survey of the *Cereus*. The plant in question stands beside a specimen of *Cereus* whose flower that of the *Echinocactus* very nearly resembles, and which is remarkably full-grown and stout. Both plants grow tall and straight. Both have deep straight ribs. And, in both, the tubercles are arranged, with reference to one another on the adjoining ribs, in a regular figure, the quincuncial,—a matter which will, I think, be remarked in all the numerously ribbed species of *Cereus*, and a similar *character* of regular relative arrangement in those which have only three or four ribs. The *Echinocactus* is now nearly a foot high. It has continually, and regularly, grown in height, but does not get any broader.

I could enlarge on some other points of character; but this letter has already become longer than I intended. I will only add, that young plants sometimes run into the long thin form of so many of the *Cereus*. I have had young shoots of *Echinocactus* which could not be distinguished from young shoots of even *Cereus flagelliformis*;—which will be admitted to be about as extreme a comparison as could be made.

Thinking that any observations which can tend to the elucidation, or *fixation* (if I may say so), of the important and interesting question of *What is a Genus?* cannot be wholly useless, I place the above very much at your service.

I am, my dear Sir, very truly yours,

W. Francis, Ph.D.

J. TOULMIN SMITH.

CAUSE OF THE POTATO DISEASE.

The precise cause of the potato disease is still unknown; but we are able at least to eliminate certain presumed causes, and to prove where the disease begins, and how it reaches the tubers. It is pretty generally admitted at present that the parts of the plant exposed to the air are first attacked, and that their diseased state precedes that of the tubers, and probably causes it. The following is a rather curious proof that such is the case. M. de Gheldere of Thourout in Belgium grafted some tobacco plants upon potatoes, according to Tschudy's method. Success was probable, as the *Nicotiana* and *Solanum* belong to the same family. The grafts did not merely take, a fact of itself very interesting, but the plants happening to be in a field of potatoes entirely attacked by the disease, the grafted stocks alone remained exempt. If the tubers were sound in this case, it can only be attributed to the presence of the leaves of tobacco not liable to the disease, instead of leaves of the potato itself. The fact